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IS 431 (1972): paint remover, solvent type, flammable [CHD
20: Paints, Varnishes and Related Products]



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“Knowledge is such a treasure which cannot be stolen”

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IS : 431 - 1972
(Reaffirmed 2009)

Indian Standard
SPECIFICATION FOR PAINT REMOVER,
SOLVENT TYPE, FLAMMABLE
(Second Revision)

Second Reprint FEBRUARY 2001

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

AMENDMENT NO. 1 OCTOBER 2007
TO
IS 431 : 1972 SPECIFICATION FOR PAINT
REMOVER, SOLVENT TYPE,
FLAMMABLE

(Second Revision)

(Page 4, clause 3.5) — Substitute the following for the existing:

'3.5 Consistency — The material shall be suitable for application by brush. The material when tested as prescribed in Appendix C shall have rate of flow similar to that of an oil of viscosity not lower than 10 P.'

(CHD 20)

Reprography Unit, BIS, New Delhi, India

Indian Standard

SPECIFICATION FOR PAINT REMOVER, SOLVENT TYPE, FLAMMABLE (*Second Revision*)

Paints and Allied Products Sectional Committee, CDC 8

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Indian Standard
**SPECIFICATION FOR PAINT REMOVER,
SOLVENT TYPE, FLAMMABLE**
(Second Revision)

0. FOREWORD

0.1 This Indian Standard (Second Revision) was adopted by the Indian Standards Institution on 15 September 1972, after the draft finalized by the Paints and Allied Products Sectional Committee had been approved by the Chemical Division Council.

0.2 This standard was originally issued in 1953 and subsequently revised in 1964. The original version of this standard was based on the interim co-ordinated draft, prepared by the Co-ordinating Subcommittee of the No. 5 Standing Committee on Specifications for Paints and Allied Stores of the General Headquarters (now Army Headquarters), India. In this revision an additional requirement for consistency and a method for its determination have been added while requirements for marking and non-volatile matter have been modified.

0.3 This standard achieves alignment with JSS 3073 'Specification for paint remover, inflammable' issued by the Department of Standardization, Ministry of Defence, Government of India.

0.4 This standard is one of the two Indian Standard specifications on paint removers. The other Indian Standard specification is IS: 430-1972*.

0.5 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS:2-1960†. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes requirements and methods of sampling and test for the material commercially known as paint remover, solvent type, flammable.

*Specification for paint remover, solvent type, non-flammable (*second revision*).

†Rules for rounding off numerical values (*revised*).

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1.1.1 The material is intended for general use on vertical and horizontal surface of painted, varnished or lacquered wood, plaster and metal. Certain types of coatings, such as some-stoving, cold-cured or polymeric materials may not be readily acted upon by the material covered by this specification.

2. TERMINOLOGY

2.1 For the purpose of this standard, the definitions given in IS : 1303-1963* and in 2 of IS : 101-1964† shall apply.

3. REQUIREMENTS

3.1 Form and Condition — The material shall be a homogeneous liquid and shall be free from grit and other visible impurities.

3.2 Composition — The material shall be of such a composition as to comply with the requirements of this standard.

3.3 Freedom from Alkalinity and Acidity - When tested as prescribed in Appendix A, the water extract prepared from the material shall not give red colour with phenolphthalein and blue colour with congo red when added to portions of the water extract separately.

3.4 Nonvolatile Matter — When tested as prescribed in Appendix B, the material shall have a residue between 4 to 10 percent by mass.

3.5 Consistency — The material when tested as prescribed in Appendix C shall have a rate of flow similar to that of an oil of viscosity not lower than 10 P and not higher than 20 P.

3.6 Efficiency — When applied by a brush or a swab to a thoroughly dry, old (air-dried or stoved) paint film and allowed to stand for five minutes, the material shall soften the paint film to such an extent that it is easily removed with a scraper made of wood or non-ferrous metal. In this respect, the material, when tested at the same time and in the same manner, shall not be inferior in efficiency to either of the mixture of the following compositions:

Composition 1

a) Dichloromethane	90 ml
b) Ordinary denatured spirit conforming to IS : 324-1959‡	10 ml
c) Cellulose acetate, medium viscosity	10 g
d) Paraffin wax	1.5 g

*Glossary of terms relating to paints (*revised*).

†Methods of test for ready mixed paints and enamels (*second revision*).

‡Specification for ordinary denatured spirit (*revised*).

Composition 2

a) Dichloromethane	70 g
b) Trichloroethylene conforming to IS : 245-1970*	26 g
c) Paraffin wax	4 g

3.7 Keeping Properties — When stored in original sealed containers under normal temperature conditions, the material shall satisfy, for a period of not less than 1 year from the date of manufacture, the requirements prescribed in this standard.

4. PACKING AND MARKING

4.1 Packing — The material shall be suitably packed in well-closed containers. The packing shall be as agreed to between the purchaser and the supplier and subject to the provisions of the law in force in the country at the time of packing.

4.1.1 All containers in which the material is stored shall be clean, dry and leak-proof. The containers shall be protected from light and stored preferably in a cool and dry place. If the containers are closed with corks, the latter shall be protected with metal foil.

4.2 Marking

4.2.1 Each container shall be marked with the following:

- a) Name of the material;
- b) Name of the manufacturer and/or trade-mark, if any;
- c) Volume of the material; and
- d) Month and year of manufacture.

4.2.2 Each container shall have a caution label bearing the legend 'FLAMMABLE' together with the corresponding symbol for labelling of dangerous goods (*see* Fig. 3 of IS : 1260-1958†). The caution label shall also be marked with the following instructions:

- a) Store in a cool place,
- b) Ensure adequate ventilation,
- c) Avoid contact with skin,
- d) Do not smoke the vapours, and
- e) Do not expose to naked flame or red-hot surfaces.

NOTE 1 — Necessary safeguard against the risk arising from the storage and

*Specification for trichloroethylene, technical (*second revision*).

†Code of symbols for labelling of dangerous goods. (Since revised).

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handling of large volumes of the material shall be provided and all due precautions shall be taken at all times to prevent accidents by fire or explosion.

NOTE 2 — Except when they are opened for the purpose of cleaning and rendering them free from vapours, all empty tanks or other containers shall be kept securely closed.

4.2.3 The product may also be marked with Standard mark.

4.2.3.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

4.3 The material, when intended for defence purposes, shall be packed and marked in accordance with IS : 5661-1970*.

5. SAMPLING

5.1 Representative samples of the material shall be drawn as prescribed in 3 of IS : 101-1964†.

6. TEST METHODS

6.1 Tests shall be conducted according to the methods prescribed in appendices to this standard. References to relevant appendices are given in 3.3 to 3.5.

6.2 Quality of Reagents — Unless specified otherwise, pure chemicals and distilled water (*see* IS : 1070-1960‡) shall be employed in tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of analysis.

7. CRITERIA FOR CONFORMITY

7.1 A lot shall be declared as conforming to the requirements of this standard, if the test results of composite sample satisfy the requirements prescribed under 3.

*Code of practice for packing and marking of packages of paints, enamels, varnishes and allied products.

†Methods of test for ready mixed paints and enamels (*second revision*).

‡Specification for water, distilled quality (*revised*).

APPENDIX A

(Clause 3.3)

TEST FOR FREEDOM FROM ALKALINITY AND ACIDITY

A-1. REAGENTS

A-1.1 Phenolphthalein Indicator — Dissolve 0.1 g of phenolphthalein in 100 ml of 60 percent rectified spirit.

A-1.2 Congo Red Indicator — Dissolve 0.1 g of congo red in 10 ml of rectified spirit conforming to IS:323-1959* and dilute to 100 ml with water.

A-2. PROCEDURE

A-2.1 Prepare a water extract of the material by shaking it with twice its volume of freshly boiled and cooled water. Test the freedom from alkalinity and acidity by adding phenolphthalein indicator and congo red indicator to separate portions of the extract.

APPENDIX B

(Clause 3.4)

DETERMINATION OF NONVOLATILE MATTER

B-1. PROCEDURE

B-1.1 Weigh accurately about 4 g of the material by difference from a stoppered tube in a previously weighed flat-bottomed dish, 75 mm in diameter. Keep the dish on a water-bath for 1 hour and then place it in an air-oven maintained at 105 to 110°C for about 30 minutes. Cool it in a desiccator and weigh. Repeat the heating, cooling and weighing till a constant mass is obtained.

B-1.2 Report the residue as percentage of the mass of the material taken for the test.

*Specification for rectified spirit (*revised*).

APPENDIX C

(Clause 3.5)

METHOD FOR THE DETERMINATION OF CONSISTENCY

C-0. GENERAL

C-0.1 Outline of the Method — The viscosity of the material is determined by measuring the force required to impart a certain speed to a cylinder immersed in the material.

C-1. APPARATUS

C-1.1 Viscometer — Stormer viscometer with paddle type rotor, as illustrated in Fig. 1 and 2. Intercalibration of any two viscometers may be carried out by determining the load in grams required to produce a shearing rate of 200 rev/min with a standard oil having a viscosity of 10 to 20 P at 25°C.

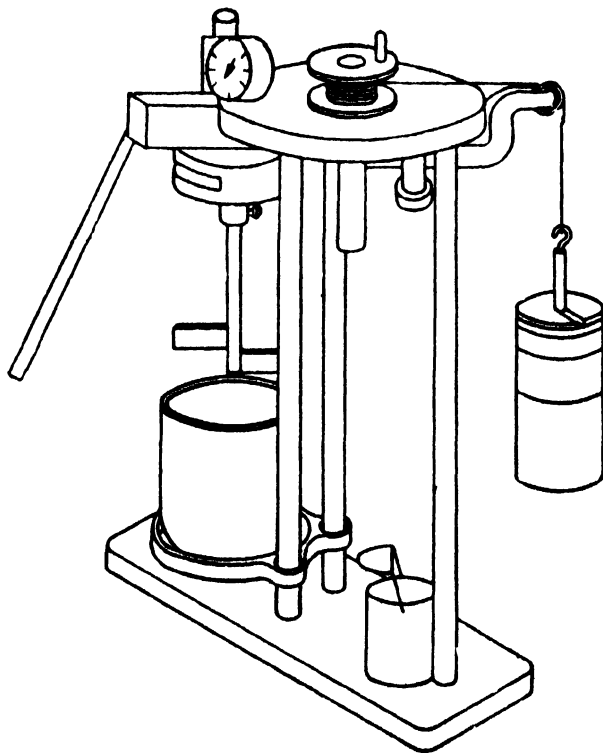
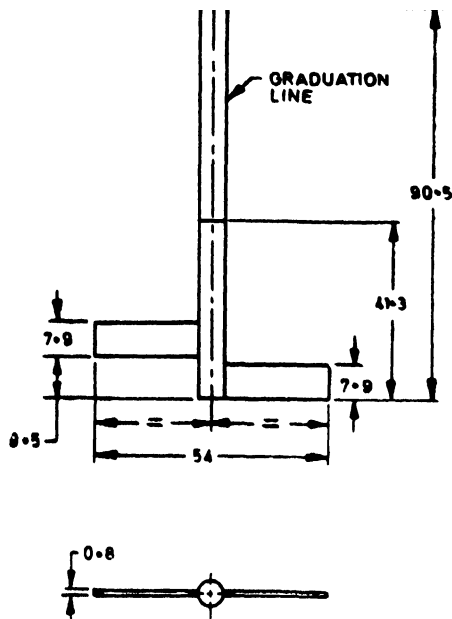


FIG. 1 STORMER VISCOMETER WITH PADDLE TYPE ROTOR AND STROBOSCOPE TIMER



All dimensions in millimetres.

FIG. 2 PADDLE TYPE ROTOR FOR USE WITH STORMER VISCOMETER

C-1.2 Container — 150-ml friction-top can, 8.6 cm in diameter.

C-1.3 Thermometer — a suitable thermometer having a range of 20 to 70°C.

C-2. PROCEDURE

C-2.1 Pour the material into the container and fill to three-fourths. Bring the temperature of the sample to $25 \pm 0.2^\circ\text{C}$ and maintain at that temperature during test. Set the container on the stand of the viscometer and raise to the level of the mark on the paddle shaft. Connect the lamp circuit to ac mains. Before starting the test, turn the rotor through approximately 100 revolutions in 25 to 30 seconds. Using different masses, determine to the nearest 5 g of the mass necessary to produce 200 rev/min pattern (*see Note*) on the stroboscopic timer where the lines appear to remain stationary. Lines moving in the direction of the rotation of the paddle indicate a speed greater than 200 rev/min and mass shall be removed. Conversely, lines moving opposite to the direction of the rotation of the paddle indicate a speed less than 200 rev/min and the mass shall be added. Repeat the test until consistent results are obtained.

NOTE — There are other patterns which appear at speeds other than 200 rev/min. The pattern for 200 rev/min should be determined before running any tests.

C-2.2 Report the consistency as the mass in grams necessary to produce the 200 rev/min pattern.

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